PM Brigade Combat Team Environmental Management

2003 Secretary of the Army Award for Environmental Excellence in Weapons System Acquisition.

- The Project Management Office for the Brigade Combat Team (PMO BCT) was Recently Selected for the 2003 Secretary of the Army Award for Environmental Excellence in Weapons System Acquisition
- PMO BCT Received the Award in Recognition of the PMO BCT's Environmental Management Efforts in FY2002 and FY2003

Stryker Family of Vehicles

Infantry Carrier Vehicle (ICV)

- 8x8 Wheeled w/CTIS & Run Flat
- High Hard Steel Structure
- Remote Weapon Station with cal .50 MG or MK19 40mm

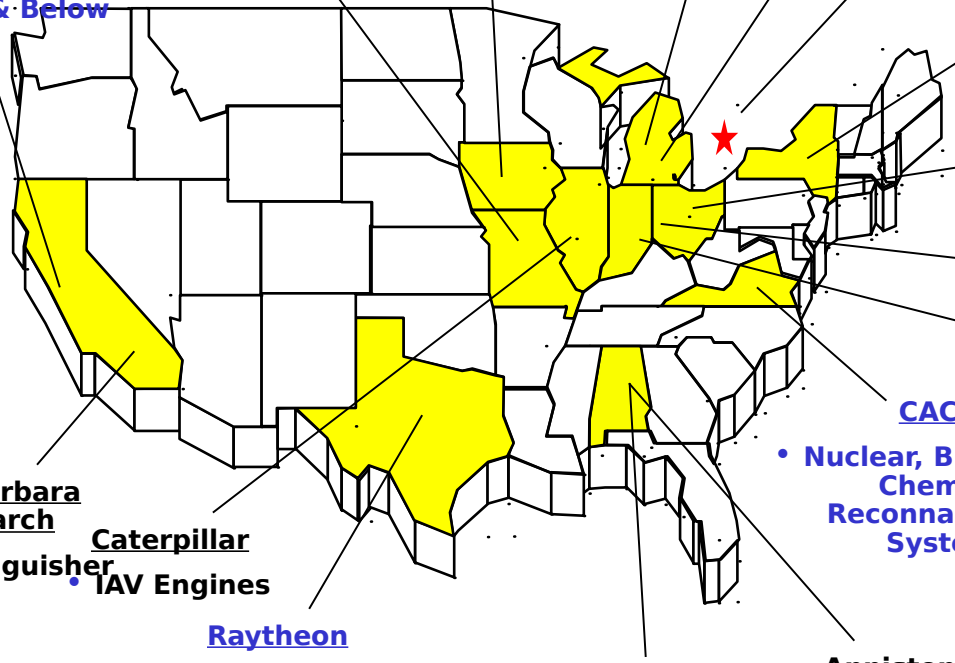
Mobile Gun System (MGS)

- Low Profile Turret
- M68A1 Cannon w/Autoloader
- Full Solution Fire Contr

SBCT	Quantity
Infantry Carrier Vehicle	108
Mortar Carrier	36
Reconnaissance	48
Engineer Squad	9
Fire Support	13
Commander's	39
Medical	17
Antitank Guided Missile (ATGM)	9
NBCRV	3
Mobile Gun Systems (MGS)	27
Total	309

2CR	Quantity
Infantry Carrier Vehicle	0
Mortar Carrier	18
Reconnaissance	108
Engineer Squad	15
Fire Support	12
Commander's	24
Medical	18
Antitank Guided Missile	36
NBC Recon	8
Mobile Gun Systems	54
Total	293

Key Stryker Production Sites



SEI
- STRIKER

Rockwell
- Global Positioning System

TRW
- Command, Control, Communications, Computers, And Intelligence
- Force XXI Battle Command Brigade & Below

Demmer
- Turret Structures

GDLS
- Engineering

GDLS Canada
(London, Ontario)
- Structure Fabrication
- Final Assembly

Watervliet Arsenal
- MGS M68A1 Cannon

Ares
- MGS Autoloader

GDLS-Lima
- Upper Hull Structures
- MGS Turret

Allison Transmission
- IAV Transmissions

CACI
- Nuclear, Biological, Chemical Reconnaissance System

Santa Barbara Research
- Fire Extinguisher

Caterpillar
- IAV Engines

Raytheon
- Improved Tow Acquisition System
- Long Range Advanced Scout Surveillance System
- Drivers Vision Enhancer

GDLS Anniston
- Final Assembly

Anniston Army Depot
- Paint & Ship

Canada
- Armor (DEW)

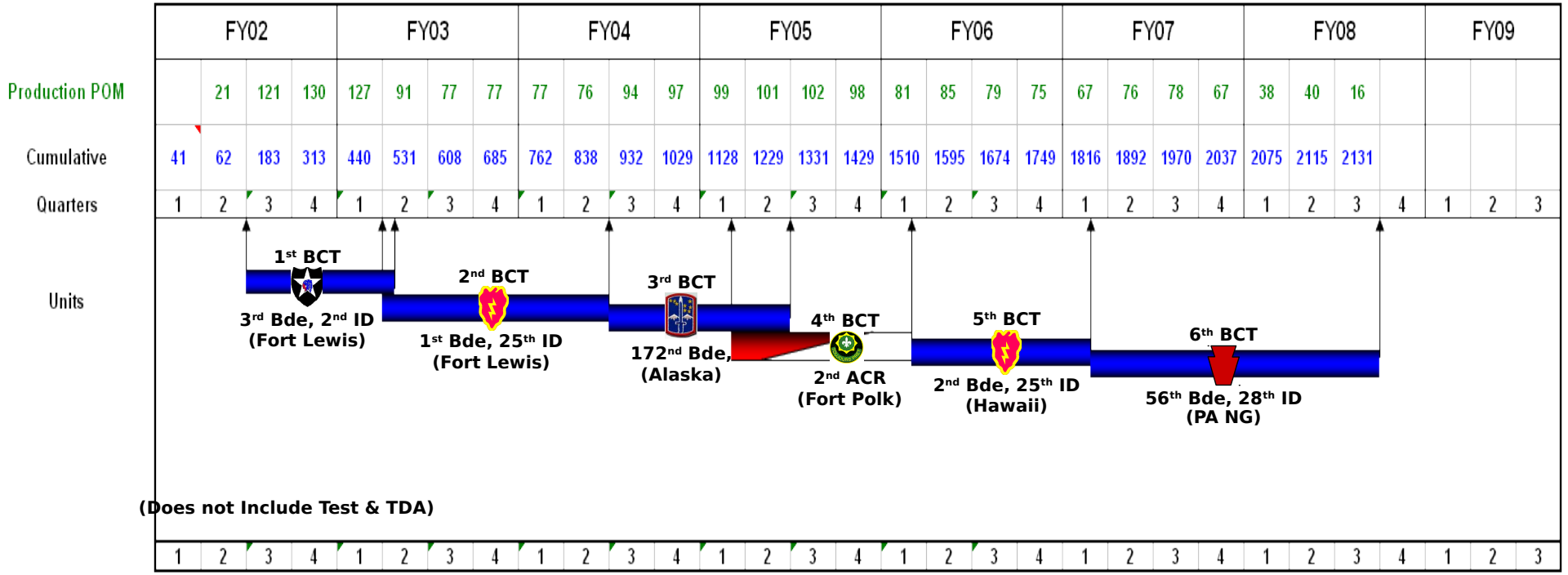
Great Britain
- Mine Plow/Roller (Pearson)

Israel
- 120mm Mortar (Soltam)

Norway
- Weapons Mount (Kongsberg Protech)

**Blue denotes GFE/ASIOE*

Stryker Fielding Plan



(Does not Include Test & TDA)

as of 23 January 2004 1317hrs

Environmental Management Strategy

- **PMO BCT Continues an Extensive Program to Minimize Environmental Impacts During the Entire Stryker FoV Life Cycle**
- **This Approach Minimizes Stryker FoV Impacts at the Earliest Time Possible in the FoV Life Cycle**
  - **Proactive Contract Requirements**
  - **Continuous Review of Emerging Pollution Prevention Opportunities**
  - **Environmental Analysis Included in the Decision Making Process to Ensure that Those Initiatives were Considered and Balanced with Cost, Performance, and Schedule**
  - **Aggressively Pursued, with the Prime Contractor GDLS, the Elimination of Hexavalent Chromium Containing Components Wherever Possible and Replaced with Them with More Environmentally Friendly Alternative Materials**

Approach

- **PMO BCT Established the PM BCT Environmental Management Team (PM BCT EMT)**
- **PM BCT EMT Consists of Representatives from the PMO BCT Divisions, Prime Contractor, Army Environmental Center, Forts Lewis and Polk, FORSCOM, and other DA Organizations**
- **Use of the PM BCT EMT Allows PMO BCT to Concurrently Incorporate Perspectives and Input from the Vehicle System Manufacturer, DA Organizations, and Vehicle Maintainers and Operators**

Approach (Cont'd)

- PM BCT EMT Members' Expertise And Knowledge Base Enables PMO BCT to Identify And Resolve Previously Unknown Environmental Issues Associated with the Stryker FoV Manufacture, Operation, and Maintenance
- PMO BCT also Uses the PM BCT Members' Expertise to Identify and Incorporate Pollution Prevention Opportunities

Contract Requirements

- PMO BCT has Attempted to Eliminate Hazardous Materials at the Earliest Possible Time in the Vehicle Design Phase
- Stryker Requirement and Logistics Support Contracts Eliminate the Use of Highly Toxic Materials, as Identified by the National Institute for Occupational Safety and Health
- Both Contracts also Eliminate the Use of
  - Class I and Class II Ozone Depleting Compounds
  - Radioactive Materials
  - Asbestos
- The Contracts also Require the Government's Approval for Use of Cadmium, Hexavalent Chromium or Other Hazardous Materials

Environmental Successes

Targeted Hazardous Material/Pollution Source	Alternative Material/Process	Result
DoD-P-15328 wash primer application to Stryker Hull structures	Direct-to Metal application	Eliminated use of wash primer that contains 6.5 pounds per gallon VOC. Also eliminated approximately 2 pounds of Cr^{+6} pigment per vehicle
Halon 1301 (Class I ODC)	FM200 with sodium bicarbonate in occupied area and FE25 in engine compartment	Eliminated Class I ODC in the Stryker FoV fire suppression system
Class I and II ODC Based refrigerants	R-134a	Eliminated Class I and II ODC usage in Stryker FoV

Environmental Successes (Cont'd)

Targeted Hazardous Material/Pollution Source	Alternative Material/Process	Result
Cr^{+6} aluminum pretreatments	Non-Cr^{+6} aluminum pretreatment	Impacted approximately 450 components/items per vehicle
Cd plating	Zinc plating	Impacted approximately 400 components/items per vehicle
Cr^{+6} post treatment on zinc plating	Trivalent chromium process	Impacted approximately 400 components/items per vehicle
P-D-680 dry cleaning solvents	MIL-PRF-680 solvents	Eliminated VOCs during vehicle component cleaning processes
Vehicle POL spills	Seamless lower hull	Eliminated POL spills

Current and Future Efforts

- **PMO BCT's Current and Future Environmental Impact Reduction Efforts Include**
  - **Eliminating the Remaining Uses of Cadmium and Hexavalent Chromium**
  - **Reducing the Amount of Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs) Used During Vehicle Manufacturing and Maintenance**
    - **Low VOC and HAPs Free Coatings**
    - **Low VOC and HAPs Solvents**
  - **Decreasing Overall Stryker FoV Logistics Footprint**